

**AMENDMENTS TO THE CLAIMS**

1. (Currently Amended) A method for configuring lightpaths within an optical network, comprising:

storing a plurality of requests for a lightpath between a source node in the optical network and a destination node in the optical network in a queue at the source node;  
receiving a token at the source node of the optical network indicating an available space within a wavelength;

wherein the token is adapted to bear availability information related to the available space within the wavelength and broadcast the availability information across the optical network;

based upon the availability information, issuing by the source node, of a reservation request;

selecting a request from the plurality of requests in the queue of the source node responsive to a best fit window protocol; and

establishing, responsive to selection of the request, the lightpath between the source node and the destination node.

2. (Original) The method of Claim 1, wherein the step of establishing further comprises the step of:

updating the token to indicate the wavelength supporting the lightpath is unavailable; and

forwarding the updated token to the destination node.

3. (Original) The method of Claim 1, wherein the step of selecting further comprises the steps of:

comparing the space available on the wavelength to the plurality of requests within the queue of the source node; and

selecting a request having a longest span from the queue that fits within the space available on the wavelength.

4. (Original) The method of Claim 1, wherein the step of selecting further comprises the steps of:

determining whether a soft deadline associated with any request in the queue has expired;

removing any request having an expired soft deadline from the queue; and

selecting a removed request having an oldest expired soft deadline that fits within the space available on the wavelength.

5. (Currently Amended) A method for configuring lightpaths within an optical network, comprising:

receiving a token at a source node of the optical network indicating an available space within a channel;

wherein the token is adapted to bear availability information related to the available space within the channel and broadcast the availability information across the optical network;

based upon the availability information, issuing by the source node, of a reservation request;

determining whether a soft deadline associated with any request in a queue at the source node has expired;

if a soft deadline has expired, selecting a request having an oldest expired soft deadline that fits with an available space within the wavelength;

if a soft deadline has not expired, comparing a space available on a wavelength to each request within the queue of the source node;

selecting a request having a longest span from the queue that fits within the available space on the wavelength; and

establishing the lightpath between the source node and the destination node.

6. (Original) The method of Claim 5, wherein the step of establishing further comprises the step of:

updating the token to indicate the wavelength supporting the lightpath is unavailable; and

forwarding the updated token to the destination node.

7. (Original) The method of Claim 5, further including the step of storing a request in the queue of the source node.

8. (Currently Amended) An optical network, comprising:

a source node;

a destination node interconnected with the source node by a plurality of wavelengths, each wavelength associated with a particular channel;

a token associated with each of the plurality of wavelengths and indicating availability of the associated wavelength for supporting a lightpath; and

wherein the source node is configured to:

store a request for a lightpath between the source node in the optical network and the destination node in the optical network at the source node;

receive a token at the source node of the optical network indicating an available space within a wavelength associated with the token;

wherein the token is adapted to bear availability information related to the available space within the wavelength and broadcast the availability information across the optical network;

based upon the availability information, the source node is adapted to issue a reservation request;

select a request from the queue of the source node responsive to a best fit window protocol; and

establish responsive to selection of the request, the lightpath between the source node and the destination node.

9. (Original) The optical network of Claim 8, wherein the source node is further configured to:

update the token to indicate the wavelength supporting the lightpath is unavailable; and  
forward the updated token to the destination node.

10. (Original) The optical network of Claim 8, wherein the source node is further configured to:

compare the space available on the wavelength to each request within the queue of the source node; and  
selecting a request having a longest span from the queue that fits within the space available on the wavelength.

11. (Original) The optical network of Claim 8, wherein the source node is further configured to:

determine whether a soft deadline associated with a request in the queue at the source node has expired;  
removing any request having an expired soft deadline from the queue; and  
selecting a removed request having an oldest expired soft deadline that fits within the space available on the wavelength.

12. (Original) The optical network of Claim 8, wherein the source node is further configured to store the request in the queue of the source node.

13. (Currently Amended) A node within an optical communication network, comprising:  
a transmitter for transmitting to other nodes within the optical communications network;

a receiver for receiving data from the other nodes within the optical communication network;

a queue for storing requests for connections between the node and a destination node; and

a controller, said controller configured to:

store a request for a lightpath in the queue between the node in the optical network and the destination node in the optical network;

receive a token from the receiver indicating an available space within a wavelength;

wherein the token is adapted to bear availability information related to the available space within the wavelength and broadcast the availability information across the optical communication network;

based upon the availability information, the controller is adapted to issue a reservation request;

select the request from the queue responsive to the token using a best fit window protocol; and

establish responsive to selection of the request, the lightpath between the node and the destination node using the transmitter.

14. (Original) The node of Claim 13, wherein the controller is configured to:  
update the token to indicate the wavelength supporting the lightpath is  
unavailable; and  
forward the updated token to the destination node using the transmitter.
15. (Original) The node of Claim 13, wherein the controller is further configured to:  
compare the space available on a channel to each request within the queue; and  
select a request having a longest span from the queue that fits within the space  
available on the wavelength.
16. (Original) The node of Claim 13, wherein the controlled is further configured to:  
determine whether a soft deadline associated with any request in the queue has  
expired;  
remove any request having an expired soft deadline from the queue; and  
select an oldest removed request that fits within the space available on the  
wavelength.